

## Remarks

### Status of the Subject Application

Applicants' note with appreciation the allowance of claims 20-29 and the allowability of claims 5-7, 9-11, and 31. In accordance with the suggestion of the Examiner, Applicants have amended claim 5 to include all of the limitations of the base claim from which it depends. For those reasons, Applicants submit that claims 5-7 and 20-29 are allowable.

Claims 1-4, 12-19, and 30 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States patent number 4,702,214 to Wataya ("Wataya '214"), claims 1-3, 8, 12-19, and 30 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States patent number 4,706,631 to Wataya ("Wataya '631"), claims 1, 2, 12-17, and 30 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States patent number 5,261,369 to Vernier ("Vernier").

### Specification Amendments

Applicants have amended the specification to correct informalities contained therein. Applicants submit that no new matter is contained in the specification amendments.

### Discussion of the References

Wataya '214 discloses a fuel injection control apparatus wherein the opening of a throttle valve is corrected on the basis of the opening of a valve in a bypass passage, wherein a correction factor corresponding to both the corrected opening of the throttle valve and the rotational frequency of the engine is obtained from a preset map, and wherein an average of the output of the air-flow sensor is multiplied by the obtained correction factor to correct the error of the air-flow sensor in the return-blow region. See column 3, lines 42-54. The bypass passages are provided to supply air to the engine by bypassing the throttle valve

to prevent lowering of the rotation rate of the engine when the throttle valve is closed during idling. See column 4, lines 7-10. The Examiner also states that "Figure 6 disclos[es] a correction to the airflow signal before entry to the processor for calculating a fueling amount." Applicants respectfully disagree with that statement noting that the correction and the fuel quantity are calculated in the controller 8. See column 4, lines 19-24 and Figure 6.

Wataya '631 discloses a control system that corrects the output signal of a hot-wire air-flow sensor by using a correction factor calculated on the basis of the opening of a throttle valve and the rotational frequency of the engine. See column 3, lines 45-48. The control system further corrects the signal on the basis of the change of air quantity depending on the temperature of the suction air and determines the fuel injection quantity of the basis of the corrected suction air quantity. See column 3, lines 48-53. Wataya '631 further discloses that the air flow sensor error in the return blow region can be corrected by multiplying the average output of the air-flow sensor by the correction factor at column 4, lines 27-30.

Vernier discloses an external pressure sensor connected to an intake duct between a control member and an inlet port in a cylinder. See column 1, lines 15-18. The pressure sensor is stated to not be mechanically associated with the engine, but connected by a flexible tube between the pressure take-off and the pressure sensor at column 4, lines 20-28. The external pressure sensor is said to act as a pneumatic tachometer by detecting successive peaks of the pressure signal. See column 6, line 33 to column 7, line 1. The external pressure sensor is also said to be capable of detecting a leak at the inlet or exhaust valve or a parasitic air inlet in the intake pipe at column 7, lines 15-32.

**The Rejections of Claims 1-4, 12-19, and 30 Under 35 U.S.C. §102(b)**

**Claims 4 and 18**

Applicants have withdrawn claims 4 and 18 herein.

**Claims 1-3, 8-17, and 19**

Applicants have amended claim 1 to include, *inter alia*, an input coupled to the processor and to be coupled to a signal uncoupled from a control unit and an output coupled to the processor to have incident thereon a modified signal and to be coupled to the control unit in place of the signal to modify operation of an apparatus due to a change of a component of the apparatus. Applicants submit that neither Wataya '214, Wataya '631, nor Vernier disclose such a device. Accordingly, Applicants submit that claim 1 and claims 2, 3, 8-19 which depend therefrom are patentable.

**Claim 30**

Applicants submit that neither Wataya '214, Wataya '631, nor Vernier discloses uncoupling a signal that controls mass of fuel injected into a cylinder from an engine control unit input, coupling the signal to a signal conditioning device input, modifying the signal based on a current actual engine operating level and current desired engine operating level, and coupling the modified signal to the engine control unit input. Accordingly, Applicants submit that claim 30 is also patentable.

**New Claims**

**Claims 32-35**

New claim 32 recites, *inter alia*, a switch included with a signal modifying device which, when actuated, selects one region of the control table and changes the modifier associated with the selected system operating range and a numeric display included with the signal modifying device, which displays the selected

region of the control table and the modifier associated with the selected system operating range. Applicants submit that neither Wataya '214, Wataya '631, nor Vernier disclose such a device. Accordingly, Applicants submit that claim 32 and claims 33-35 which depend therefrom are patentable.

#### Claims 36-49

New claim 36 recites, *inter alia*, a first switch included with a signal modifying device which, when actuated, selects one region of the control table, a second switch included with the signal modifying device which, when actuated, changes the modifier associated with the region, and a numeric display included with the signal modifying device, which displays the selected region of the control table and the modifier associated with the selected region. Applicants submit that neither Wataya '214, Wataya '631, nor Vernier disclose such a device. Accordingly, Applicants submit that claim 36 and claims 37-49 which depend therefrom are patentable.

#### Claims 50-60

New claim 50 recites selecting from the signal modifying device one of a plurality of regions of a control table, inputting a modifier associated with the selected region of the control table from the signal modifying device, and displaying the selected region of the control table and the modifier associated with the selected region on a numeric display on the signal modifying device. Applicants submit that neither Wataya '214, Wataya '631, nor Vernier disclose such a device. Accordingly, Applicants submit that claim 50 and claims 51-61 that depend therefrom are patentable.

#### Claims 61-63

New claim 61 recites, *inter alia*, a first switch included with a signal modifying device which, when actuated, selects one region of the control table, a second switch included with the signal modifying device which, when actuated, changes the modifier associated with the region, and an alphanumeric display

included with the signal modifying device, which displays the selected region of the control table and the modifier associated with the selected region. Applicants submit that neither Wataya '214, Wataya '631, nor Vernier disclose such a device. Accordingly, Applicants submit that claim 61 and claims 62-63 which depend therefrom are patentable.

#### Claim 64

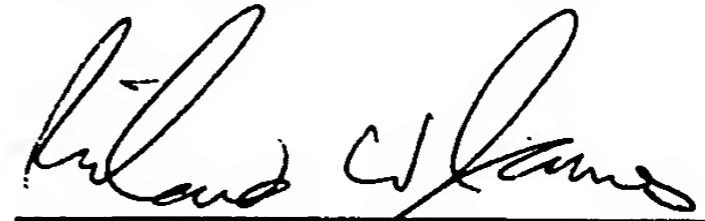
New claim 64 recites, *inter alia*, a unitary signal modifying device that interpolates between modifiers in adjacent regions when the current system operating level approaches a system operating level defined where the regions meet. Applicants submit that neither Wataya '214, Wataya '631, nor Vernier disclose such a device. Accordingly, Applicants submit that claim 64 is patentable.

#### Conclusion

Applicants respectfully submit that claims 1-3, 5-17 and 19-64 are in condition for allowance. Applicants also submit that the amendments contained herein are supported in the specification and that no new matter has been introduced in the amendments presented herein. Accordingly, reconsideration of the present objections and rejections and passage to allowance of claims 1-3, 5-17 and 19-64 at an early date are earnestly solicited.

If the Examiner is of the opinion that the instant application is in condition for disposition other than allowance, the Examiner is respectfully requested to contact Applicant's Attorney at the telephone number listed below so that any concerns may be expeditiously addressed.

Respectfully Submitted



Richard W. James  
Richard W. James  
Registration No. 43,690  
Attorney for Applicants

25 Churchill Road  
Pittsburgh, PA 15235  
Phone: (412) 243-8708  
Facsimile: (412) 243-4070  
rich@jamespatent.com